

### *Deck Frames of Junk*

A number of years ago, I had the privilege of attending a lecture by the late R. Buckminster Fuller, in which he stated one of the fundamental objectives of his work: He wanted to create technologies that would allow more people to have enough.

He said that the geodesic dome was a result of such thinking, in that it allowed large areas to be enclosed by a much smaller amount of structural material.

I began then wondering if this principle could be applied to flat structures of practical sizes. I wanted to span them with shorter pieces of material that would normally be dumped or burned as junk.

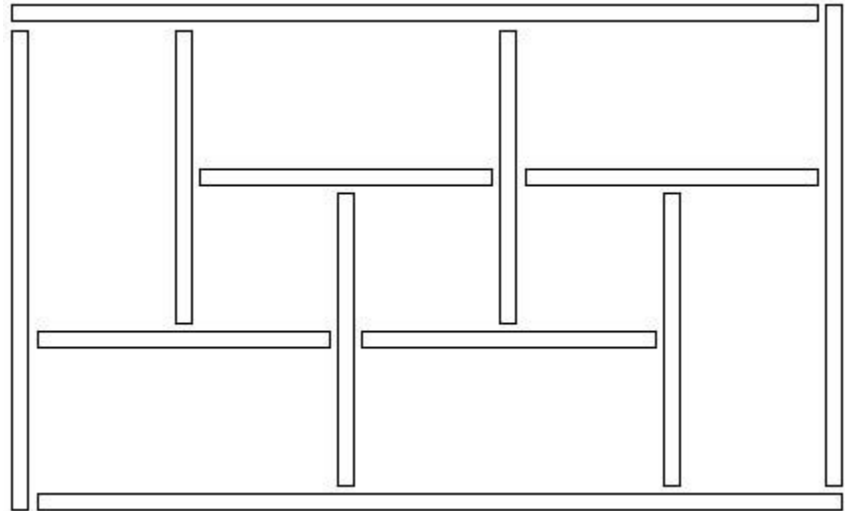
This simple layout shown here provided me with a small picnic deck from some junk crate wood I happened to have around.

Ironically, this structure led to the idea of the "**any-stick shelter**" described at the beginning of this section, winding up as a dome again.

When properly connected, the dead load on any element would be  $\frac{2}{3}$  the amount that a single element of the span could hold by itself.

Later, when I wanted an economical layout that would be more compatible with a round

(dome) structure, I came up with the hexagonal deck layout shown here: The only supports needed are at the outside corners or points. Keep in mind that the internal pattern could theoretically be repeated to any size. Only the perimeter would require longer pieces or more supports.



You might find it interesting that this hexagonal layout can also be translated into an "any-stick shelter" structure, but it is much trickier to assemble, and is probably not as practical.

The area of a hexagon will be the length of one of its sides squared, times 2.5981.

The center-to-center length of the internal pieces of this structure will be  $\frac{2}{3}$  the length of one of the sides.

